

TOWN OF CHAPLIN

INSPECTION of BEDLAM ROAD BRIDGE over UNNAMED STREAM

Bridge No. 024004



Prepared For:

THE TOWN OF CHAPLIN

**495 PHOENIXVILLE ROAD
CHAPLIN, CT 06235**

MAY 20, 2019

**Prepared by:
Wengell, McDonnell & Costello
-Consulting Engineers-
87 Holmes Road
Newington, Connecticut 06111**

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EXECUTIVE SUMMARY

GENERAL

Bridge No. 024004 carries Bedlam Road over Stream in the Town of Chaplin, Connecticut. The steel girders and concrete deck slab bridge was constructed in 1952 and was rebuilt 1992. The bridge has an approximate span of 17.5 feet and carries two lanes of traffic. The bridge consists of stone masonry and concrete abutment and wingwalls with metal guiderails parallel to the traffic direction.

WMC Consulting Engineers (WMC) performed the inspection of the steel girder bridge in May, 2019. The inspection included the visual evaluation of all bridge members and the channel through the structure, as well as just upstream and downstream of the bridge. The bridge was found to be in Serious Condition (Condition Rating = 3) mainly due to the substructure.

OVERVIEW

The Deck is in Satisfactory Condition (Condition Rating = 6). Concrete deck slab with corrugated metal deck forms left in place is in good condition.

The Channel and Channel Protection is in Poor Condition (Condition Rating = 4). There are scour holes at the upstream face of the west abutment and downstream face of the east abutment. Parts of the channel are heavily overgrown. There are a few loose stones along the west abutment embankment. No embankment erosion has been observed.

The Superstructure is in Fair Condition (Condition Rating = 5). It consists of a concrete deck slab. Both facial beams have rusting along the beams and moderate rusting at both ends due to moisture. No section loss was observed.

The Substructure is in Serious Condition (Condition Rating = 3). Mortar loss in stone abutment and wingwalls. There are full height vertical cracks from the bridge seat to the foundation on both abutments at both ends. There are also full height vertical cracks in the wingwalls. There are stone missing and minor efflorescence leakage is noticed in both wingwalls and abutment as well.

The Approach Roadway is in Fair Condition (Condition Rating = 5). Two lanes asphalt road with vegetation on the embankments. Guide rail are missing bolts and nuts. Guiderail length is insufficient to develop full strength and no wire guide rail is available with only individual posts in place. Cracks in asphalt exist on both approach of the bridge.

**Bridge No. 024004
Bedlam Road over Stream
Chaplin, CT**

**APPENDIX A
Form BRI-18 & BRI-19**

Connecticut Department of Transportation Bridge Inspection Report BRI-18

BRIDGE #: 024004

INSPECTION DATE: 05/18/19

INSPECTION TYPE: ROUTINE **PREVIOUS INSPECTION DATE:** 02/08/17 **SNOOPER REQUIRED:**
INSPECTION PERFORMED BY: WMC ENGINEERS **SNOOPER USED:**

TOWN: 13810 - Chaplin **FEATURE CARRIED:** Bedlam Road **YEAR BUILT:** 1952
LOCATION: 0.92 Mi West Route 198 **FEATURE INTERSECTED:** an unnamed stream **YEAR REBUILT:** 1992
MAIN MATERIAL: 3 - Steel **MAIN DESIGN:**

INSPECTION VISITS:
 Inspection Date: 5/18/2019 Start Time: 6:30
 Temperature: 65 End Time: 9:30

INSPECTORS:
 Inspector: Seb. Abdullah Task:
 Inspector: Nertii Semani Task:
 Inspector: Task:

58. DECK **OVERALL RATING** 6

	RATING	
OVERLAY	6	Good condition only a few transverse cracks at both ends of the bridge
DECK STR. CONDITION	6	Left in place deck forms are in satisfactory condition
CURBS	N	
MEDIAN	N	
SIDEWALKS	N	
PARAPET	N	
RAILING	6	Galvanized steel bridge rails at the bridge and approaches, with some minor rusting in the connection with the exterior beams.
PAINT	N	
FENCE	N	
DRAINS	N	
LIGHTING STANDARD	N	
UTILITIES TYPE/SIZE	N	
CONSTRUCTION JOINTS	N	
EXPANSION JOINTS	N	

59. SUPERSTRUCTURE **OVERALL RATING** 5

	RATING	
BEARING DEVICES	5	Moderate rusting on steel bearing plates.
STRINGERS	N	
GIRDERS	6	Facia girders exhibit moderate rusting all around and at each end.
FLOOR BEAMS	N	
TRUSSES-GENERAL	N	
TRUSSES-PORTALS	N	
TRUSSES-BRACING	N	
PAINT	4	
RUST	4	
MACHINERY MOV SPAN		

Connecticut Department of Transportation Bridge Inspection Report BRI-18

BRIDGE #: 024004

INSPECTION DATE: 5/18/2019

RIVETS & BOLTS	<input type="checkbox"/> N	
WELDS & CRACKS	<input type="checkbox"/> N	
TIMBER DECAY	<input type="checkbox"/> N	
CONCRETE CRACKING	<input type="checkbox"/> N	
COLLISION DAMAGE	<input type="checkbox"/> N	
MEMBER ALIGNMENT	<input type="checkbox"/> N	
DEFLECT. UNDER LOAD	<input type="checkbox"/> N	
VIBR. UNDER LOAD	<input type="checkbox"/> N	
STAND PIPES	<input type="checkbox"/> N	
BARREL LADDERS	<input type="checkbox"/> N	

ARE BARREL LADDERS OSHA COMPLIANT?

60. SUBSTRUCTURE OVERALL RATING 3

RATING

ABUTMENTS-STEM	<input type="checkbox"/> 3	Abutments have some missing mortar, minor effrescence and light scalling. All wingwalls have full height vertical carcks, in some parts about 3-4 inches wide with random spalls. There are full height vertical cracks causing separation between the wingwalls and west abutment.
ABUTMENTS-BACKWALL	<input type="checkbox"/> 4	There are cracks observed in backwall where it meets wingwalls and facia beams
ABUTMENTS-FOOTINGS	<input type="checkbox"/> 4	
ABUT.-SETTLEMENT	<input type="checkbox"/>	
ABUTMENTS-WINGWALLS	<input type="checkbox"/> 3	
PIERS/BENTS-CAPS	<input type="checkbox"/> N	
PIERS/BENTS-PILE BENT	<input type="checkbox"/> N	
PIERS/BENTS-COLUMN	<input type="checkbox"/> N	
PIERS/BENTS-FOOTINGS	<input type="checkbox"/> N	
PIERS/BENTS-SETTLEMENT	<input type="checkbox"/> N	
EROSION-SCOUR	<input type="checkbox"/> 4	On the east abutment downstream side and on west abutment upstream side about 4 feet deep. scour pools have been observed.
CONCRETE CRACK-SPALL	<input type="checkbox"/> N	
STEEL CORROSION	<input type="checkbox"/>	
PAIN	<input type="checkbox"/>	
TIMBER DECAY	<input type="checkbox"/>	
COLLISION DAMAGE	<input type="checkbox"/> N	
DEBRIS	<input type="checkbox"/>	

61. CHANNEL PROTECTION OVERALL RATING 4

RATING

CHANNEL SCOUR	<input type="checkbox"/> 4	There are scour holes at the east abutment downstream side and at the west abutment upstream side about 4 feet deep.
EMBANKMENT EROSION	<input type="checkbox"/> N	
DEBRIS	<input type="checkbox"/> 4	On the upstream side dead tress and branches have created a pond.
VEGETATION	<input type="checkbox"/> 4	All banks and inside the channel is overly vegetated

Connecticut Department of Transportation Bridge Inspection Report BRI-18

BRIDGE #: 024004

INSPECTION DATE: 5/18/2019

CHANNEL CHANGE	<input type="checkbox"/> N	
FENDER SYSTEM	<input type="checkbox"/> N	
SPUR DIKES & JETTIES	<input type="checkbox"/> N	
RIP RAP	<input type="checkbox"/> N	

62. CULVERTS & RETAINING WALL		OVERALL RATING	<input type="checkbox"/> N
	RATING		
BARREL	<input type="checkbox"/> N		
CONCRETE	<input type="checkbox"/> N		
STEEL	<input type="checkbox"/> N		
TIMBER	<input type="checkbox"/> N		
HEADWALL	<input type="checkbox"/> N		
CUTOFF WALL	<input type="checkbox"/> N		
DEBRIS	<input type="checkbox"/> N		
RETAINING WALL STEM	<input type="checkbox"/> N		
FOOTING	<input type="checkbox"/> N		

APPROACH CONDITION		OVERALL RATING	<input type="checkbox"/> 5
	RATING		
APPROACH SLAB	<input type="checkbox"/> N		
RELIEF JOINTS	<input type="checkbox"/> N		
APPROACH GUIDE RAIL	<input type="checkbox"/> 5	Guiderrails look entact but there are bolt and nusts missing almost in every piece connections.	
APPROACH PAVEMENT	<input type="checkbox"/> 6	Approach slab is satsifactory condition with minor longitudinal cracking.	
APPROACH EMBANKMENT	<input type="checkbox"/> N		
TRAFFIC SAFETY FEATURES:			
BRIDGE RAILINGS	<input type="checkbox"/> 5	Exhibit rust at the connections with facial beams.	
TRANSITIONS	<input type="checkbox"/>		
APPROACH GUARDRAILS	<input type="checkbox"/> 5	Guiderrails are missing bolt and nusts in connections.	
APPR. GUARDRAIL ENDS	<input type="checkbox"/> 5		

LOAD POSTING			
SINGLE UNIT (TONS)	<input type="checkbox"/> N		
HS (TONS)	<input type="checkbox"/> N		
4 AXLE (TONS)	<input type="checkbox"/> N		
2S3 (TONS)	<input type="checkbox"/> N		
ADVANCE WARNING Y/N	<input type="checkbox"/> N		
LEGIBILITY	<input type="checkbox"/> N		
VISIBILITY/LOCATION	<input type="checkbox"/>		

**Connecticut Department of Transportation
Bridge Inspection Report BRI-18**

BRIDGE #: **024004**

INSPECTION DATE: **5/18/2019**

MISC.

MIN VERT. UNDERCLR.	<input type="checkbox"/> ' <input type="checkbox"/> "	<input type="text"/>
POSTED CLR UNDER BRIDGE	<input type="checkbox"/> ' <input type="checkbox"/> "	<input type="text"/>
POSTED CLR UNIT (TONS)	<input type="checkbox"/> ' <input type="checkbox"/> "	<input type="text"/>
ADVANCE WARNING (Y/N)	<input type="text"/>	<input type="text"/>
SPEED LIMIT (IF ANY)	<input type="text"/> MPH	<input type="text"/>
CHARACTER OF TRAFFIC		<input type="text"/>

ADDITIONAL NOTES

ADDITIONAL COMMENTS:

Inspectors' Signatures:	1) _____	DATE: __/__/__
	2) _____	DATE: __/__/__
	3) _____	DATE: __/__/__
	4) _____	DATE: __/__/__
P.E. Signature:	_____	DATE: __/__/__
P.E. #:	_____	
Reviewed by:	_____	CDOT DATE: __/__/__

Bridge Number 024004

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BRIDGE SAFETY & EVALUATION

STRUCTURE EVALUATION
SHEET 1 OF 2 FORM BRI-19 REV 10/00

Inspected By: Seb. Abdullah & Nerfil Semani

Sufficiency Rating 39.57%
Previous Inspection Date 10/26/2016

BS&E Received [] Data Entry By: []
Copies [] Data Entry Date: []

SHEET [] OF [] (INSP. REPORT)

IDENTIFICATION

Bridge Name Bedlam Road Bridge
Town Name Chaplin Town Code 13810
Inventory Route: []
Record Type [] Route Number 198
Signing Prefix [] Directional Suffix []
Level of Service []

Feature Intersected Un-named stream
Facility Carried Bedlam Road
Location 0.92 Mi West of Route 198

Milepoint 0.92 Mile
Latitude 41 deg 46 min 40 sec
Longitude -72 deg 8 min 55 sec
Border Bridge: []
State Code N Border Town Name N
Border Bridge Structure No []

STRUCTURE TYPE AND MATERIAL

Structure Type, Main: []
Material 02
Structure Type, Approach: []
Material 0
Number of Spans, Main Unit 001
Number of Approach Spans 0000
Deck Structure Type 6
Wearing Surface/Protective System: []
Type of Wearing Surface 6
Type of Membrane 0
Type of Deck Protection 0

90) Inspection Date 051819
Indepth Insp []
Inspection Team []
Deck Survey []
Access []
Flagman []
91) Frequency Class []
Type []
Frequency []
Team []
Date []

CRITICAL FEATURE INSPECTIONS

Fracture: []
Uwater: []
Special: []

AGE AND SERVICE

Year Built 1952
Year Reconstructed 1992
Type of Service: 1
On [] Under 5
Number of Lanes: 2
On [] Under 00
Average Daily Traffic 400
Percent Truck 1990
Year of ADT 04
Bypass, Detour Length []

GEOMETRIC DATA

Length of Max Span 17.5 ft
Structure Length 21 ft
Curb or Sidewalk Widths: 0 ft
A) Left [] B) Right []
BRG Rdwy width, curb-curb 20 ft
Deck Width, Out-Out 21 ft
Approach Roadway Width 21 ft
Bridge Mediar []
Deck Area 420 sqft
Skew Angle 0 deg
Structure Flared []
Inv. Rte. Min. Vert Clearance 9999 ft
Log Inv. Rte. Total Horiz Cir.: []
Rlog Inv. Rte. Total Horiz. Cir.: 20.4 ft
Min Vert Clearance Over Bridge 9999 ft
Min Vert Under Clearance 00 Ref
Min Lat Under Clearance on Right 00 Ref
Min Lat Under Clearance on Left []

BRIDGE COMMENTS

RED FLAG

CLASSIFICATION

- 112) NBIS Bridge Length
- 104) Highway System
- 26) Functional Class
- 100) Defense Highway
- 101) Parallel Structure
- 103) Temporary Structure
- 110) Designed National Network
- 20) Toll
- 21) Maintain
- 22) Owner
- Report Class
- 37) Historical Significance

N	
8	
0	
0	
N	
0	
3	
0	
3	
0	
3	
4	

STRUCTURE EVALUATION
 SHEET 2 OF 2 FORM BRI-19 REV 10/00
 SHEET ____ OF ____ (INSP. REPORT)

Bridge Number	024004	NBIS LENGTH
Town Name	Chaplin	
Facility Carried		Stream
Feature Crossed		Bedlam Road

INSPECTED BY: EDWARD SCOVILLE P.E.

LOAD RATING AND POSTING

31) Design Load	0.5	Evaluation Code	0
63) Operating Rating Type	5	Year of Evaluation	2019
64) Operating Rating		70) Bridge Posting	0
65) Inventory Rating Type	5	41) Structure Status	A
66) Inventory Rating			

CONDITION

58) Deck	6	SA	4	SA
59) Superstructure	5	SA	4	SA
60) Substructure	3	SA		
61) Channel & Chan. Protection	4	SA		
62) Culverts	N	SA	5	SA

STRUCTURE TYPE AND MATERIAL

38) Navigation Control			
39) Navigation Vert Cir.			
116) Vert-Lift Brg Nav Min			
111) Pier Abutment Protection			
40) Navigation Horiz Cir.			

75A) Type of Work Proposed	
75B) Work Done By	Seb. Abdullah
76) Length of Struct. Improvement	
94) Bridge Improvement Cost	
95) Roadway Improvement Cost	
96) Total Project Cost	
97) Year of Improvement Cost Est.	
114) Future ADT	
List No.	
Project No.	
115) Year Future ADT	
Advised	

POSTED SIGNS & UTILITIES

Other Posted Signs 1	
Other Posted Signs 2	
Actual P.L. Single Unit Truck	
Rec. P.L. Single Unit Truck	
Actual P.L. Semi-Trailer Truck	
Rec. P.L. Semi-Trailer Truck	
Actual P.L. All Vehicles	
Rec. P.L. All Vehicles	
Posted Vert Clearance On Bridge	
Posted Vert UnderClearance	
Posted Speed Limit	
Utility	
Utility	

OTHER FEATURES

Fence Required	
Fence Present	
Fence Height	
Fence Type	
Fence Material	
Fence Top Type	
Proposed Next Indepth Insp Year	
Barrel Ladder	
Stand Pipes	
Cat Walks	
Movable Inspection System	
Loose Concrete Checked?	

INSPECTION FEATURES

Proposed Next Indepth Insp Year	
Barrel Ladder	
Stand Pipes	
Cat Walks	
Movable Inspection System	
Loose Concrete Checked?	

REVIEWED BY _____ Date _____

**Bridge No. 024004
Bedlam Road over Stream
Chaplin, CT**

**APPENDIX B
Photographs**



Photo 1 - East Approach to Bridge (Facing West)

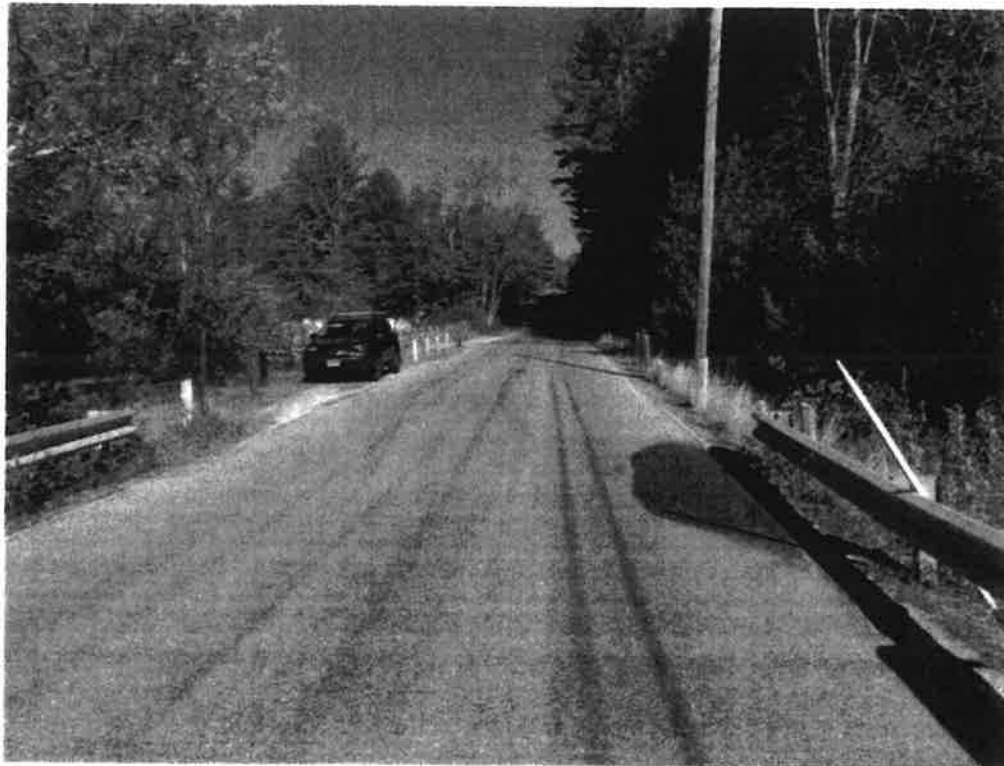


Photo 2 - West Approach to Bridge (Facing East)

BEDLAM ROAD BRIDGE OVER STREAM - BRIDGE NO. 024004



Photo 3 – West Abutment

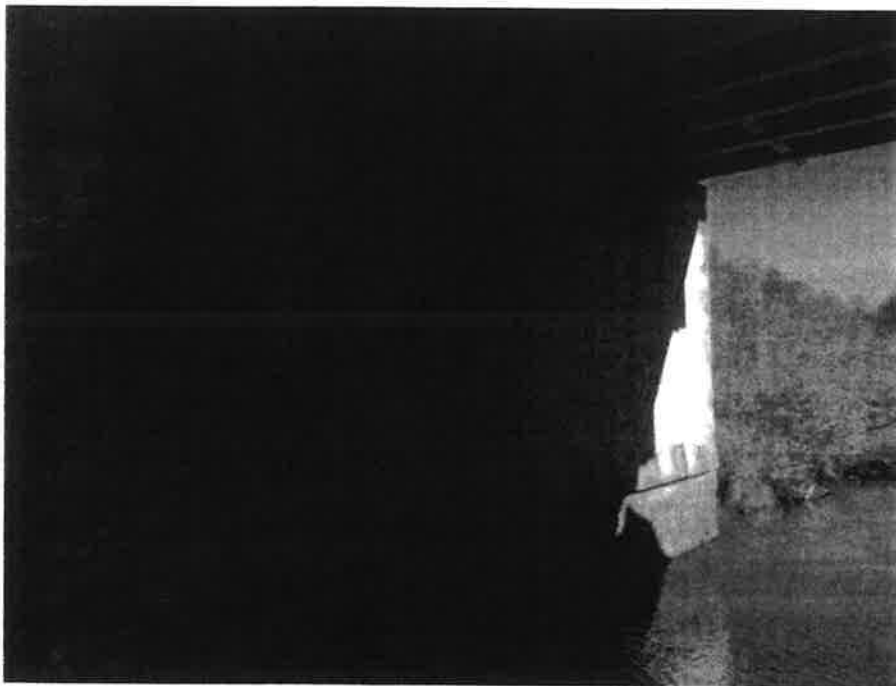
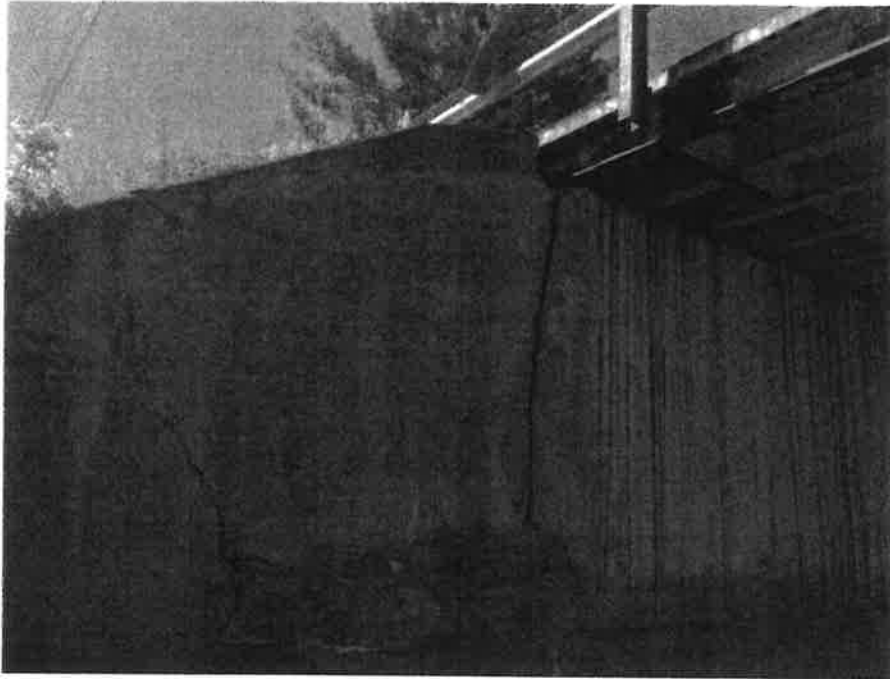
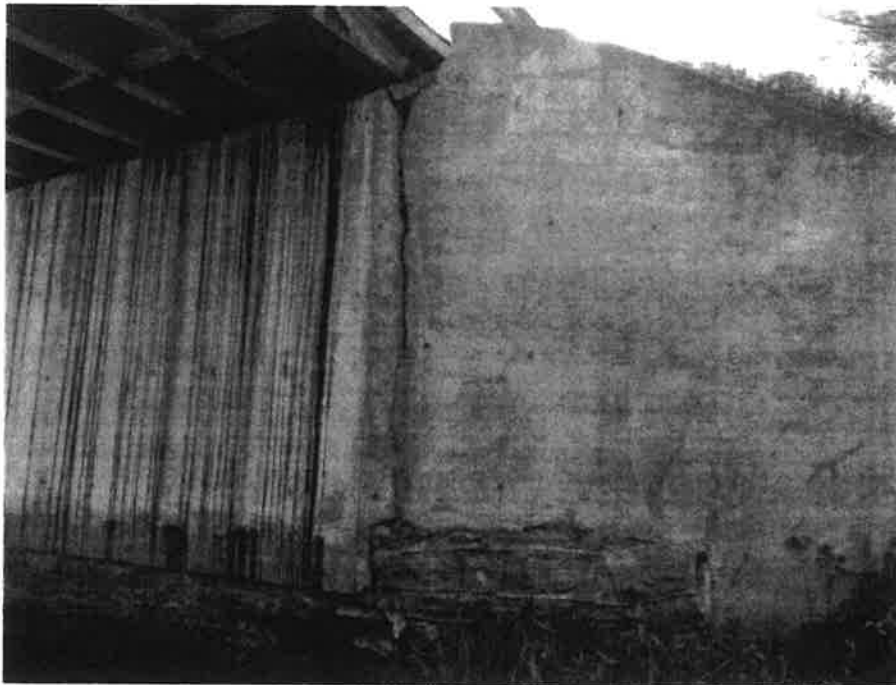


Photo 4 – East Abutment



**Photo 5 – Northwest Corner/West Abutment
Large Vertical Crack and Tilted Wingwall**



**Photo 6 – Southwest Corner/West Abutment
Large Vertical Crack and Missing Stones**

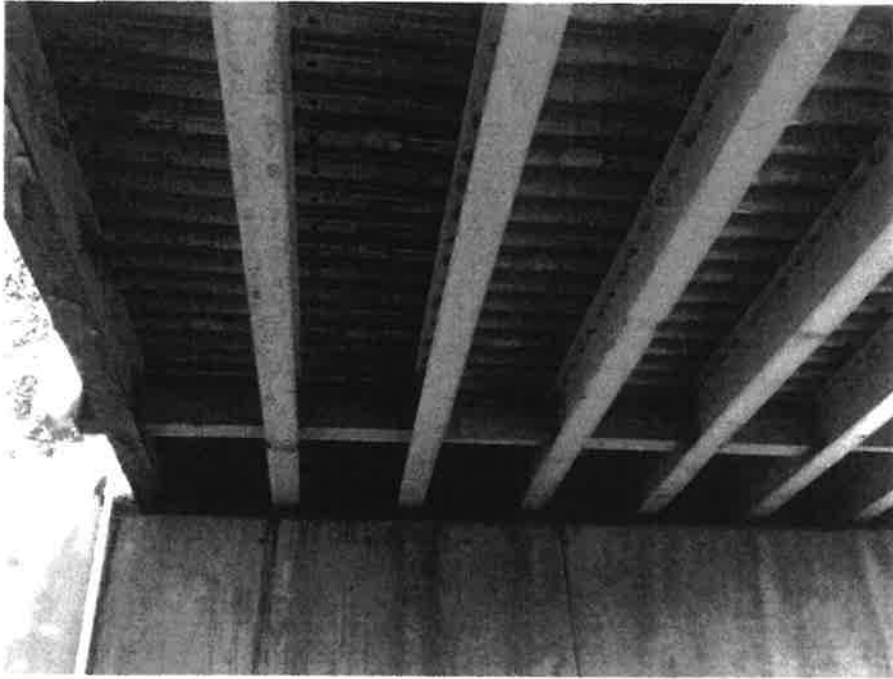


Photo 7 – Under the Bridge, Rusted Exterior Beam

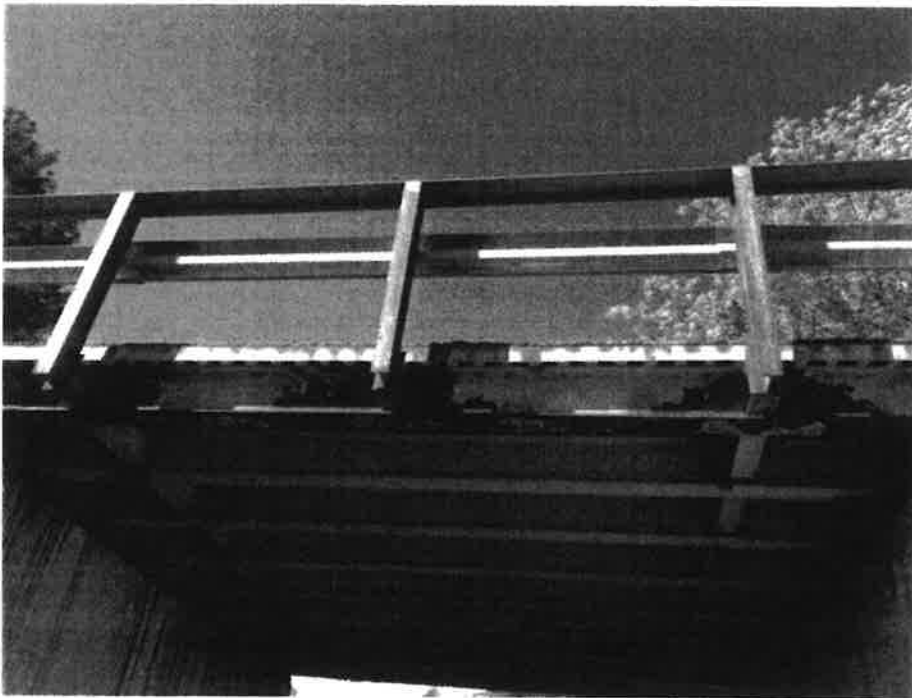


Photo 8 – Upstream Fac, Rusted Exterior Beam



Photo 9 – Downstream Face (Looking Upstream)

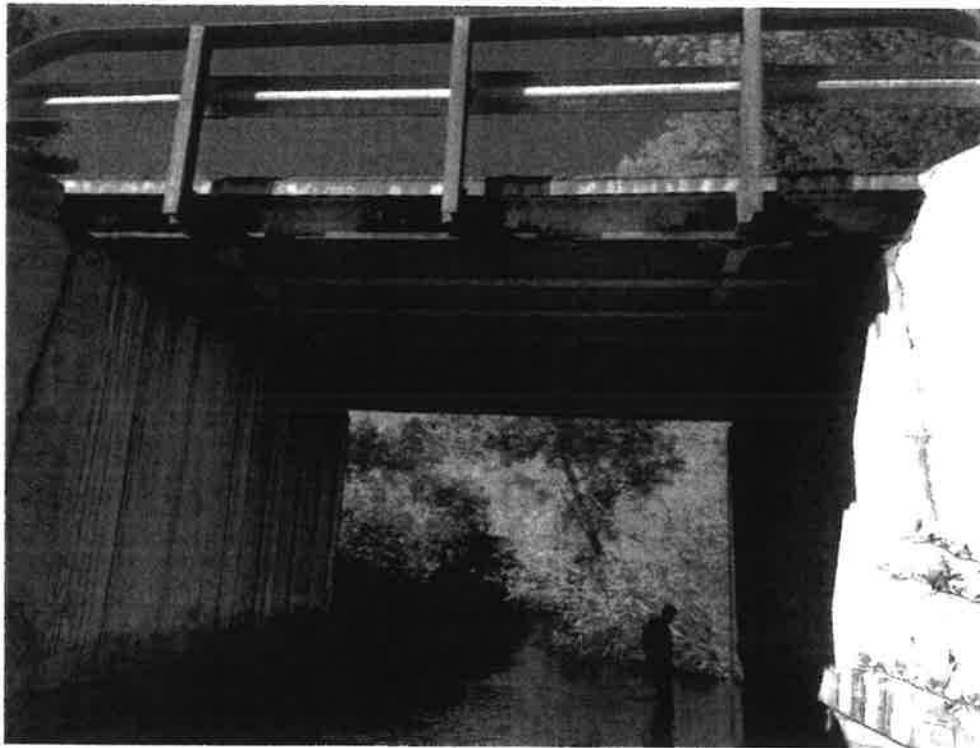


Photo 10 – Upstream Face (Looking Downstream)



Photo 11 – Northeast Corner, Large vertical crack in the wingwall

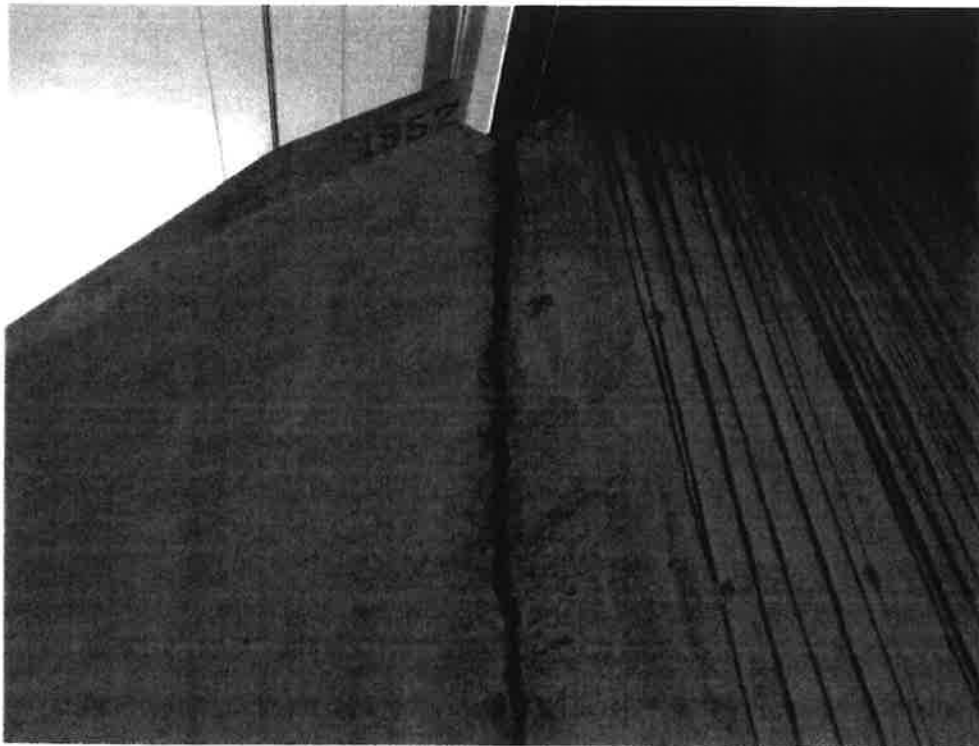


Photo 12 – Northwest Corner, Large crack and demolished top of wall

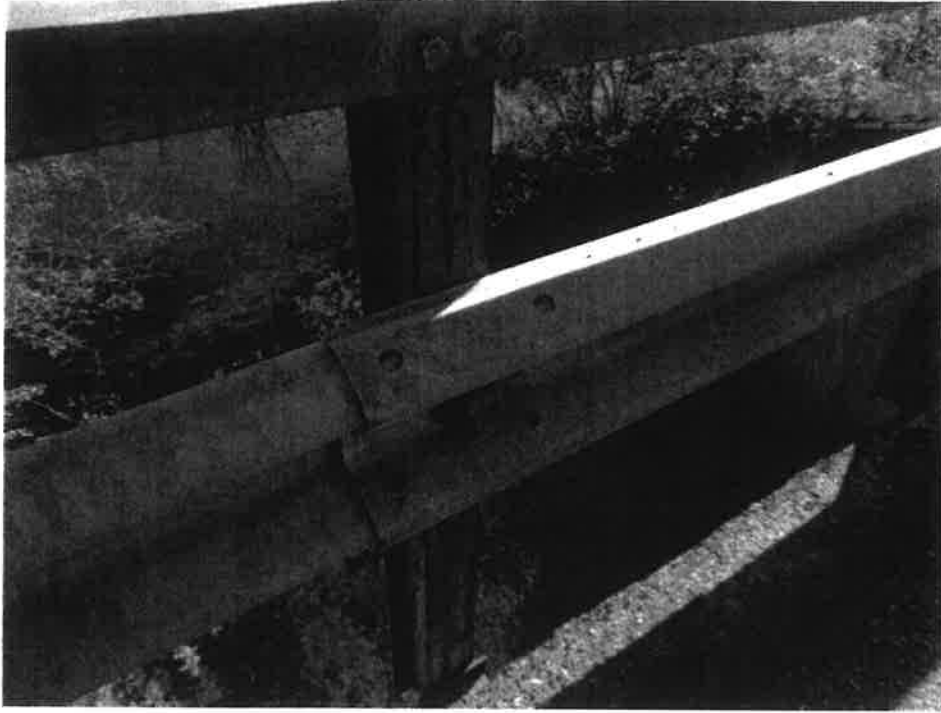


Photo 13 – Guiderails Missing Bolts at Joints

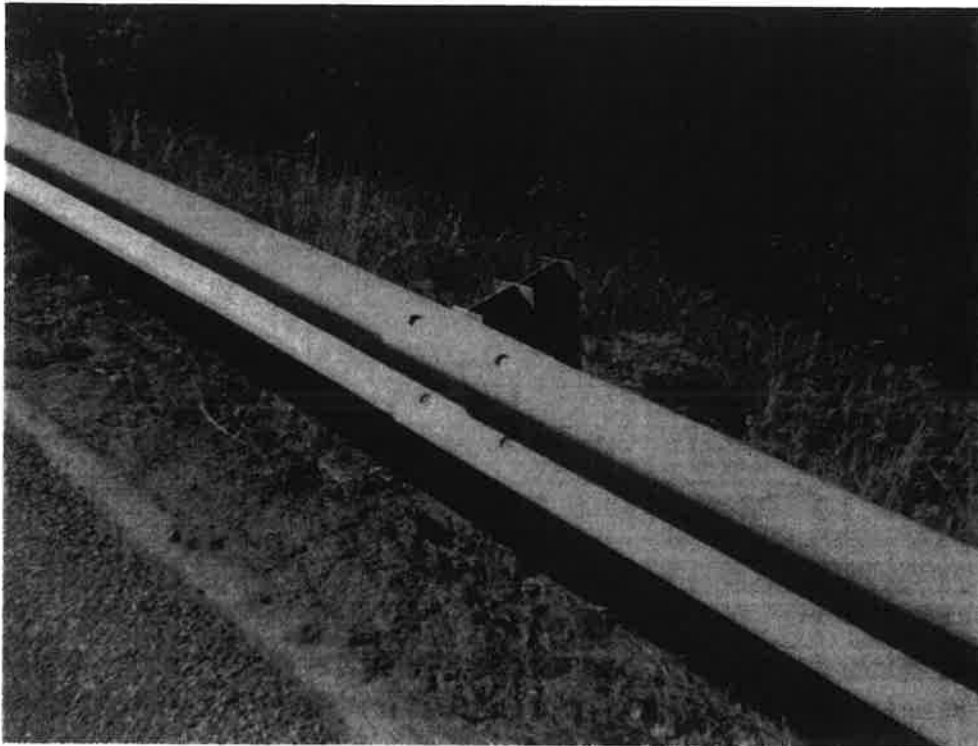


Photo 14 – Guiderails Missing Bolts at Joints



Photo 15 – Downstream (Looking from Top of Bridge)



Photo 16 – Upstream (Looking from Top of Bridge)

BEDLAM ROAD BRIDGE OVER STREAM - BRIDGE NO. 024004

**Bridge No. 024004
Bedlam Road over Stream
Chaplin, CT**

**APPENDIX D
Location Map**

LOCATION MAP

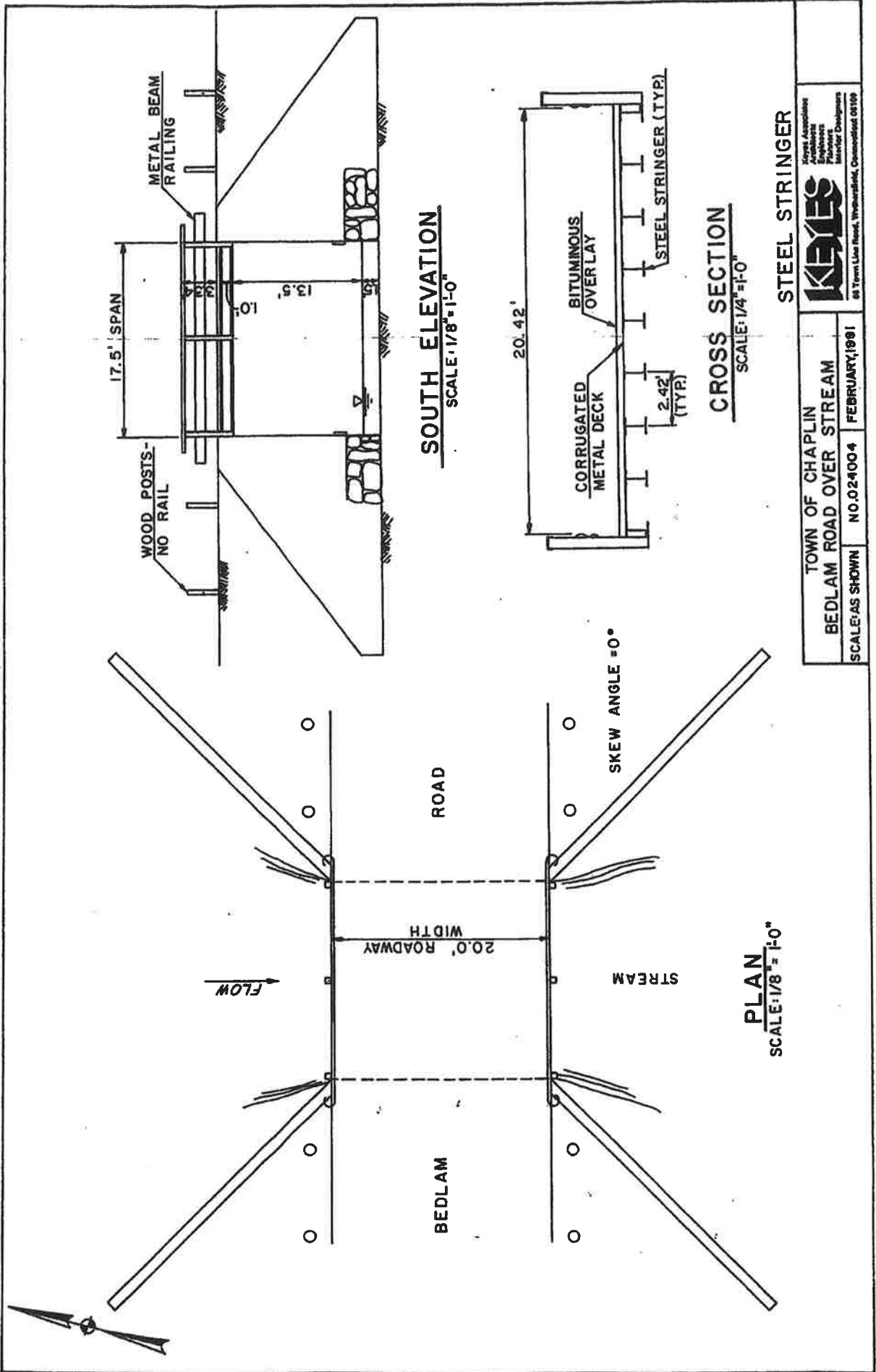


BRIDGE NO. 024004
FEATURE CARRIED: BEDLAM ROAD
FEATURE CROSSED: STREAM
TOWN: CHAPLIN, CT

BEDLAM ROAD BRIDGE OVER STREAM- BRIDGE NO. 024004

**Bridge No. 024004
Bedlam Road over Stream
Chaplin, CT**

**APPENDIX E
Existing Plans**



K&S
 K&S Associates
 Surveyors
 Engineers
 Planners
 Interior Designers
 88 Town Line Road, Whitehall, Connecticut 06109

TOWN OF CHAPLIN
 BEDLAM ROAD OVER STREAM
 SCALE: AS SHOWN NO. 024004 FEBRUARY, 1991

STEEL STRINGER

PLAN
 SCALE: 1/8" = 1'-0"

CROSS SECTION
 SCALE: 1/4" = 1'-0"

SOUTH ELEVATION
 SCALE: 1/8" = 1'-0"